
Internship at a Cutting Edge CIRM-funded Stem Cell Research Facility

Grant Award Details

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Grant Type: SPARK

Grant Number: EDUC3-13153

Project Objective: This SPARK program provides 8-week summer research internships for high school students in stem cell and regenerative medicine laboratories at UC Davis. Students, who will be recruited from diverse backgrounds, including low socio-economic backgrounds and students from underrepresented ethnic backgrounds, will receive mentoring, participate in workshops and seminars, and engage in with patients and local communities through a coordinated outreach effort. At the conclusion of their eight week internships, students will present their research in a culminating SPARK conference.

Investigator:

Name:	Gerhard Bauer
Institution:	University of California, Davis
Type:	PI

Award Value: \$508,750

Status: Pre-Active

Grant Application Details

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Public Abstract:

The CIRM Accelerate Regenerative Medicine Knowledge (SPARK) Program is a motivating, stimulating and rewarding experience encouraging young people from the State of California to enter the field of stem cell biology and research. This has been proven in our Stem Cell Program by ten years of summer internships, starting with a pilot program conducted with four high school students in the summer of 2011 and then expanded to 10 students at our institution for four additional years and re-funded for another five years, allowing highly motivated and talented students from Northern CA high schools a unique opportunity to develop skills in stem cell biology and research.

This opportunity will be available again through the new CIRM SPARK internship program. At our institution, as previously, participants are selected from the winners of a competitive award program in the field of biotechnology, called the Teen Biotech Challenge. High school students are asked to design web articles with added creative media components, in the field of biotechnology. Through the Teen Biotech Challenge Program, students gain skills in research and creative scientific writing, while achieving recognition from peers, educators and members of the biotech community. This program attracts a pool of students from Northern California high schools who are highly motivated, and is targeted toward high schools with high levels of diversity.

Ten winners of the challenge are chosen for an internship in our stem cell program. Guided by a mentor in the team that most closely matches the students' interests, they intern in one of our laboratories involved in developing novel stem cell treatments for diseases that affect the heart, brain, liver, kidney, bladder, bone, skin, eye, and other organs. Our state-of-the-art Good Manufacturing Practice (GMP) Facility is an important part of this internship, which is a highly unique opportunity, as this facility manufactures stem cells for clinical applications. Students will participate in a theoretical and practical class in stem cell biology and manufacturing practices, earn a certificate of GMP training, and will experience clinical activities in our medical school's student run clinics. The activities in the clinics will expose the students to the needs of medically under-served communities and will allow them to contemplate the application of stem cell treatments in diseases not treatable by conventional medicine. The interns will prepare and present, in front of their peers and CIRM officers, a poster or oral presentation about their project. This internship program will benefit the State of California greatly. Excellent researchers and highly skilled biotechnology laboratory personnel will be needed in the near and extended future to produce stem cell treatments in California, which are already being moved into the clinic by CIRM funded stem cell research laboratories. These young people are the future of California's health and economy.

Statement of Benefit to California: The CIRM Creativity Program, followed by the SPARK program, has provided ten years of summer internships at our institution for high school students from diverse backgrounds throughout Northern California. The summer spent at a cutting edge stem cell research facility was not only a highly educational experience for the students, but also helped them shape their intentions for a future career in science, particularly biological science and also stem cell research in the State of California.

Our previous experience with this internship and the new SPARK program planned for the coming years, highlight the following areas of benefit to the State of California: Highly motivated and talented students are chosen from a large pool of applicants who may become California's future leaders in biotechnology and stem cell biology. The applicants are selected through our institution's Teen Biotech Challenge Program, which in itself is already benefiting the state, as it develops a large number of students' interest in a career in biotechnology. High school students write scientific web articles with associated media content about the field of biotechnology, and the merits of these articles are judged by faculty members and biotech leaders in the field. This program attracts a pool of students from Northern California high schools who are interested in biotechnology and are deeply motivated; additionally, it is specifically targeted toward high schools with high levels of diversity.

For the SPARK internship program, ten of the best students from the Teen Biotech Challenge are selected. Selection criteria are based on their specific field of interest, the quality of their work, and their motivation. The success of our ten previous summer internships proves that this method of selection provides a student pool that is diverse, profoundly motivated and well qualified, with a great chance of succeeding in the summer program and also later in their careers. Ethnic diversity of the selected students is another factor taken into account during selection, appropriately reflecting the ethnic composition of the state of California. Interested and motivated high school students are of highly diverse backgrounds and may also be of under-served status; they are shown a career path that may not have been available to them otherwise, and are often the first in their family to attend college, aided by their experience in the internship and our assistance with applying for awards and scholarships.

A pool of excellent researchers and highly skilled biotechnology laboratory personnel will be needed in the near and extended future to manufacture stem cell treatments in the state of California, which are currently being developed and moved into the clinic by CIRM funded stem cell research laboratories. These young people are the future of California's health and economy, and present the best possible investment for our state.

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